



PTO/SB/08a/b (08-03)

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Substitute for form 1449A/B/PTO

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## INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Use as many sheets as necessary)

Sheet	1	of	3	Attorney Docket Number	BBNT-P01-134
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### U.S. PATENT DOCUMENTS

Examiner Initials*	Cite No. <sup>1</sup>	Document Number	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Number-Kind Code <sup>2</sup> (if known)			
AB	AA*	US-4,445,116	04-24-1984	Grow	
	AB*	US-4,649,233	03-10-1987	Bass et al.	
	AC*	US-5,469,432	11-21-1995	Gat	
	AD*	US-5,502,766	03-26-1996	Boebert et al	
	AE*	US-5,535,195	07-09-1996	Lee	
	AF*	US-5,710,773	01/1998	Shiga, Tomohisa	
	AG*	US-5,768,391	06-16-1998	Ichikawa	
	AH*	US-5,805,801	09/1998	Holloway et al	
	AI*	US-5,911,018	06-08-1999	Bischel et al.	
	AJ*	US-6,028,935	02-22-2000	Rarity et al.	
	AK*	US-6,097,696-A	08/2000	Doverspike, Robert D.	
	AL*	US-6,122,252	09/2000	Aimoto et al	
	AM*	US-6,233,075	05/2001	Chang et al	
	AN*	US-6,233,393	05/2001	Yanagihara et al	
	AO*	US-6,463,060	10/2002	Sato et al	
	AP*	US-6,507,012-B1	01/2003	Medard et al	
	AQ*	US-6,563,796	05/2003	Saito, Hiroshi	
	AR*	US-6,678,379-B1	01/2004	Mayers et al	
	AS*	US-6,684,335	01/2004	Epstein et al.	
	AT*	US-5,311,572	05/1994	Friedes et al.	
	AU*	US-5,602,916	02/1997	Grube et al.	
	AV*	US-6,341,127	01/2002	Katsube et al.	
	AW*	US-6,529,498	03/2003	Cheng, Dean	
	AX*	US-6,538,990	03/2003	Prorock, Thomas Joseph	
	AY*	US-6,560,707	05/2003	Curtis, et al.	
	AZ*	US-6,654,346	11/2003	Mahalingaiah et al.	
	AA1*	US-6,678,379	01/2004	Mayers et al.	
	AB1*	US-6,754,214	06/2004	Mahalingaiah, Rupaka	
	AC1*	US-6,836,463	12/2004	Garcia-Luna-Aceves et al.	
	AD1*	US-5,764,765	06/1998	Phoenix et al.	

### FOREIGN PATENT DOCUMENTS

Examiner Initials*	Cite No. <sup>1</sup>	Foreign Patent Document	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	T <sup>6</sup>
		Country Code <sup>3</sup> -Number-Kind Code <sup>4</sup> (if known)				

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### NON PATENT LITERATURE DOCUMENTS

Examiner Initials	Cite No. <sup>1</sup>	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city	T <sup>1</sup>
Examiner Signature	<i>[Signature]</i>	Date Considered	4/26/06

Substitute for form 1449A/B/PTO				Complete If Known	
				Application Number	09/944,328
				Filing Date	August 31, 2001
				First Named Inventor	Brig B. Elliott
				Art Unit	2131
				Examiner Name	J.E. Jackson
Sheet	2	of	3	Attorney Docket Number	BBNT-P01-134

		and/or country where published.		
	CA	"Quantum key distribution: Real-time compensation of interferometer phase drift," NTNU Department of Physical Electronics, pages 1-45.		
	CB	Bennett, C.H., et al., "Experimental Quantum Cryptography," Journal of Cryptography's special issue after Eurocrypt '90, 28 pages (September 1991).		
	CC	Bennett, C.H., et al., "Generalized Privacy Amplification," IBM Research, 24 pages (May 31, 1995).		
	CD	Brassard, G., et al., "Cryptology Column – 25 Years of Quantum Cryptography," Pragocrypt, pp. 13-24 (July 1996).		
	CE	Brassard, G., et al., "Secret-Key Reconciliation by Public Discussion," Department IRO, Universite de Montreal, 14 pages (1994).		
	CF	Ekert, A.K., "Quantum Cryptography Based on Bell's Theorem," Physical Review Letters, 67(6):661-663 (1991).		
	CG	Elliott, B.B., et al., "Path-length control in a interferometric QKD link," Proc. of SPIE, Vol. #5101, 11 pages (April 21, 2003).		
	CH	Elliott, C., "Building the quantum network," New J. Phys., 4:46 (2002).		
	CI	Franson, J.D., "Bell Inequality for Position and Time," Physical Review Letters, 62(19):2205-2208 (1989).		
	CJ	Gisin, N., et al., "Quantum cryptography and long distance Bell experiments: How to control decoherence," Geneva, Switzerland, pages 1-7 and 4 pages of drawings (January 15, 1999).		
	CK	Gisin, N., et al., "Quantum cryptography," Reviews of Modern Physics, 74:145-184 (2002).		
	CL	Jennewein, T., et al., "Quantum Cryptography with Entangled Photons," Physical Review Letters, 84(20):4729-4732 (2000).		
	CM	Maurer, U., et al., "Information-Theoretic Key Agreement: From Weak to Strong Secrecy for Free," Computer Science Department, Swiss Federal Institute of Technology, 20 pages (2000).		
	CN	Maurer, U.M., "Secret Key Agreement by Public Discussion From Common Information," IEEE Transactions on Information Theory, 39:733-742 (1993).		
	CO	Mo, X., et al., "Intrinsic-Stabilization Uni-Directional Quantum Key Distribution Between Beijing and Tianjin," Key Lab of Quantum Information, Department of Electronic Engineering and Information Science, University of Science and Technology of China, Hefei, Anhui.		
	CP	Naik, D.S., et al., "Entangled State Quantum Cryptography: Eavesdropping on the Ekert Protocol," Physical Review Letters, 84(20):4733-4736 (2000).		
	CQ	Ribordy, G., et al., "Long-distance entanglement-based quantum key distribution," Physical Review A, Volume 63, 012309-1-012309-12 (2001).		
	CR	Scarani, V., et al., "Quantum Cryptography Protocols Robust Against Photon Number Splitting Attacks for Weak Lazer Pulse Implementations," Physical Review Letters, 92(5):057901-1 through 057901-4 (February 2004).		
	CS	Scarani, V., et al., "Quantum cryptography protocols robust against photon number splitting attacks," ERATO Conference on Quantum Information Science 2003, September 4-6, 2003, Niijimakaikan, Kyoto Japan; 2 pages.		
	CT	Schneier, B., "Applied Cryptography," Second Edition, Chapter 10, October 18, 1995, Wiley & Sons Publ., pp. 216-220.		
	CU	Slutsky, B., et al., "Defense frontier analysis of quantum cryptographic systems," Applied Optics, 37(14):2869-2878 (1998).		
	CV	Stucki, D., et al., "Quantum Key Distribution over 67 km with a plug&play system," New Journal of Physics, 41.1-41.8 (2002).		
	CW	Tanzilli, S., et al., "PPLN waveguide for quantum communication," Eur. Phys. J.D., 18:155-160 (2002).		
	CX	Tittel, W., et al., "Long-distance Bell-type tests using energy-time entangled photons," Physical Review A, 59(6):4150-4163 (1999).		

Examiner Signature	<i>Janice J.</i>	Date Considered	4/26/06
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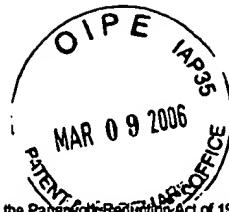
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				Examiner Name	J.E. Jackson
Sheet	3	of	3	Attorney Docket Number	BBNT-P01-134

<i>QJ</i>	CY	Degermark, M., et al., "Small Forwarding Tables for Fast Routing Lookups," ACM, pages 3-14 (1997).	
	CZ	Estrin, D., et al., "Security Issues in Policy Routing," IEEE, pages 183-193 (1989).	
	CA1	Garcia-Luna-Aceves, J.J., et al., "Distributed, Scalable Routing Based on Vectors of Link States," IEEE Journal on Selected Areas in Communications, 13(8):1383-1395 (October 1995).	
	CB1	Garcia-Luna-Aceves, J.J., et al., "Scalable Link-State Internet Routing," Network Protocols (October 13-16, 1998).	
	CC1	Lakshman, T.V., et al., "High-Speed Policy-based Packet Forwarding Using Efficient Multi-dimensional Range Matching," Proceedings of the ACM SIGCOMM'98 conference on Applications, technologies, architectures and protocols for computer communication, pages 203-214 (1998).	
	CD1	Lampson, B., et al., "IP Lookups Using Multiway and Multicolumn Search," IEEE/ACM Transactions on Networking, 7(3):324-334 (June 1999).	
	CE1	Ramanathan, R., et al., "Hierarchically-organized, multihop mobile wireless networks for quality-of-service support," Mobile Networks and Applications, 3:101-119 (1998).	
	CF1	Tsai, W.T., "An Adaptive Hierarchical Routing Protocol," IEEE Transactions on Computers, 38(8):1059-1075 (August 1989).	
	CG1	Waldvogel, M., et al., "Scalable High Speed IP Routing Lookups," ACM, pages 25-36 (1997).	
	CH1	Bowers, J.E., "Optical Network and Component Trends," UCSB, NSF Workshop, 51 pages.	
	CI1	Honjo, T., et al., "Differential-phase-shift Quantum Key Distribution," NTT Technical Review, 2(12):26-33 (Dec. 2004).	
	CJ1	Nambu, Y., et al., "BB84 Quantum Key Distribution System based on Silica-Based Planar Lightwave Circuits," Fundamental and Environmental Research Laboratories and Fiber Optic Devices Division, pages 1-11.	
	CK1	Paniccia, M., "Silicon Integrated Photonics," UCSB, 30 pages, February 2, 2005.	
<i>QJ</i>	CL1	Tomita, A., et al., "Recent Progress in Quantum Key Transmission," NEC J. of Adv. Tech., 2(1):84-91 (Winter 2005).	

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PTO/SB/08a/b (07-05)

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		Number-Kind Code <sup>2</sup> (if known)			
BB	AA*	US-6,778,557	08/2004	Yuki et al	
BB	AB*	US-6,052,465	04/2000	Gotoh et al	

FOREIGN PATENT DOCUMENTS					
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					T <sup>6</sup>

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BB	CA	Bennett, C.H. Quantum Cryptography Using Any Two Nonorthogonal States. Physical Review Letters. 68:21, 3121-24 (1992)			
BB	CB	Buttler, W.T. et al. Free-space quantum-key distribution. Physical Review A. 57:4, 2379-82 (April 1998)			
BB	CC	Jacobs, B.C. et al. Quantum cryptography in free space. Optics Letters. 21:22, 1854-56 (November 1996)			

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